

# Decimal Rounding Given Place Value

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## CONCEPT

## 1

# Decimal Rounding Given Place Value

Here you'll learn to round decimals to a given place.

Remember Connor and his track goals? Take a look at how he is doing now.

Last month, Connor's fastest race time was 13.91 and his slowest race time was 15.16. Connor still has a goal of running the 100 in 12.51.

Connor has been running every day, and he practices tirelessly.

If you round Connor's fastest race time to the nearest minute, how far is he from his goal?

**This Concept will teach you how to round decimals to a given place. Then you will be able to tackle this problem.**

## Guidance

Some decimals can extend to the millionth place or even farther and be difficult to handle in operations.

Rounding decimals is useful when estimating sums and difference or comparing measurements.

You have already learned how to round whole numbers to a given place value.

**Let's take a minute to review rounding whole numbers.**

1,537 rounded to the thousands place is 2,000; rounded to the hundreds place is 1,500; rounded to the tens place is 1,540. We can round to any place that we choose to round the number to.

**We can use the same steps when rounding decimals. Here are the steps for rounding numbers.**

### The Steps for Rounding Numbers

1. Identify the place you want to round *to*, notice that number.
2. Look at the digit to the right of that number.
3. If the digit to the right is 5 or greater, round up. If the number is less than 5, round down.

Round 406.091 to the nearest whole number

**First, underline the number you're rounding *to* and bold or circle the number directly to the right.**

**Rounding to the nearest whole number, underline the ones place.**

**The bolded number in the tenths place is the one you'll look at when deciding to round up or down.**

**Because that number is a zero, we don't round up. The whole number stays the same.**

**Our answer is 406.**

Here is another one.

Round 206.9595 to the nearest whole number

**First, underline the number you're rounding *to* and bold or circle the number directly to the right.**

**Rounding to the nearest whole number, underline the ones place.**

**The number in the tenths place is the one you look at when deciding to round up or down. This number is a nine, so we round up.**

**Our answer is 207.**

Now let's use these same steps when rounding decimal places. Round .07285 to the nearest thousandths place

**First, identify that the two is in the thousandths place. We can underline that digit because that is the digit that we are going to be rounding.**

**Next, look to the number to the right of the two. That is the number we use to determine whether we round up or down.**

**That number is an 8, so we round up.**

**Our answer is .073.**

*Notice that we don't include the digits past the place where we have rounded. This is because we have rounded that digit.*

Now it's time for you to try a few on your own.

### **Example A**

Round 1.23439 to the nearest ten-thousandth.

**Solution: 1.2344**

### **Example B**

Round 3035.67 to the nearest whole number.

**Solution: 3036**

### **Example C**

Round 0.98734 to the nearest thousandth.

**Solution: 0.987**

Here is the original problem once again.

Last month, Connor's fastest race time was 13.91 and his slowest race time was 15.16. Connor still has a goal of running the 100 in 12.51.

Connor has been running every day, and he practices tirelessly.

If you round Connor's fastest race time to the nearest minute, how far is he from his goal?

To find Connor's fastest time, we have to look at the time itself first.

13.91

We want to round it to the nearest whole. We look at the value in the tenths place. It is a nine, so we round up.

13.91 becomes 14

Now subtract  $14 - 12.51 = 1.09$

**Connor is about 1 minute and nine seconds away from his goal.**

### **Vocabulary**

Here are the vocabulary words in this Concept.

**Decimal System** a system of measuring parts of a whole by using a decimal point.

**Decimal point** the point that divides a whole number from its parts.

**Decimals** a part of a whole located to the right of the decimal point.

**Whole Numbers** counting numbers that do not include fractions or decimals. A whole number is found to the left of the decimal point.

### Guided Practice

Here is one for you to try on your own.

Round to the nearest hundredth.

12.342789

**Answer**

To do this, we have to identify the value in the hundredths place first.

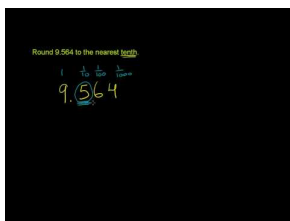
4 is the value in the hundredths place.

The value to the right of the four is a two. We don't round up.

**The answer is 12.34.**

### Video Review

Here is a video for review.



MEDIA

Click image to the left for more content.

- [This is a KhanAcademyvideo on rounding decimals.](#)

### Practice

Directions: Round the following to the nearest whole number.

1. 621.891

2. 1,318.0999

3. 17.275

4. 49.64

5. 123.56

6. 349.5

7. 16789.21

8. 12.981

9. 145.7821

Directions: Round the following to the designated place.

10. 32.295 to the nearest hundredth

11. 0.1062461 to the nearest ten-thousandth

12. 2.4004728 to the nearest hundred-thousandth

13. 4,062.03 to the nearest tenth

14. .12378 to the nearest ten - thousandth

15. 3.4567 to the nearest thousandth